

Four New Species of Geometridae (Moths) from Rancho Grande, North-central Venezuela¹

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(Plate I; Text-figures 1-7)

[This is one of a series of papers resulting from the 45th, 46th and 47th Expeditions of the Department of Tropical Research of the New York Zoological Society, made during 1945, 1946 and 1948, under the direction of Dr. William Beebe, with headquarters at Rancho Grande in the National Park of Aragua, Venezuela. The expeditions were made possible through the generous cooperation of the National Government of Venezuela and of the Creole Petroleum Corporation.

[The characteristics of the research area are in brief as follows: Rancho Grande is located in north-central Venezuela (10° 21' N. Lat., 67° 41' W. Long.), 80 kilometers west of Caracas, at an elevation of 1,100 meters in the undisturbed montane rain forest which covers this part of the Caribbean range of the Andes. The migration flyway of Portachuelo Pass, which is also the water-shed between the Ca-

ribbean and Lake Valencia, is 200 meters from Rancho Grande. Adjacent ecological zones include seasonal forest, savanna, thorn woodland, cactus scrub, the fresh-water lake of Valencia and various marine littoral zones. The Rancho Grande area is generally subtropical, being uniformly cool and damp throughout the year because of the prevalence of the mountain cloud cap. The dry season extends from January into April. The average humidity during the expeditions, including parts of both wet and dry seasons, was 92.4%; the average temperature during the same period was 18° C; the average annual rainfall over a five-year period was 174 cm. The flora is marked by an abundance of mosses, ferns and epiphytes of many kinds, as well as a few gigantic trees. For further details see Beebe & Crane, *Zoologica*, Vol. 32, No. 5, 1947.]

THE Geometridae described as new in this paper are four of five species collected by Dr. William Beebe of the New York Zoological Society. The fifth species was a single female of *Eupithecia purpureoviridis* Warren, known previously only from the unique type which came from Paramba in Ecuador.

All five species were taken at Rancho Grande near Maracay, Venezuela, and were sent for study to the Department of Entomology of the British Museum (Natural History). The types, unless otherwise indicated, are in the British Museum (Natural History). The color names are taken from Ridgway's "Color Standards and Color Nomenclature" and hence are capitalized in the text.

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Dr. Beebe informs me that these moths formed part of the great insect migration through Portachuelo Pass at Rancho Grande².

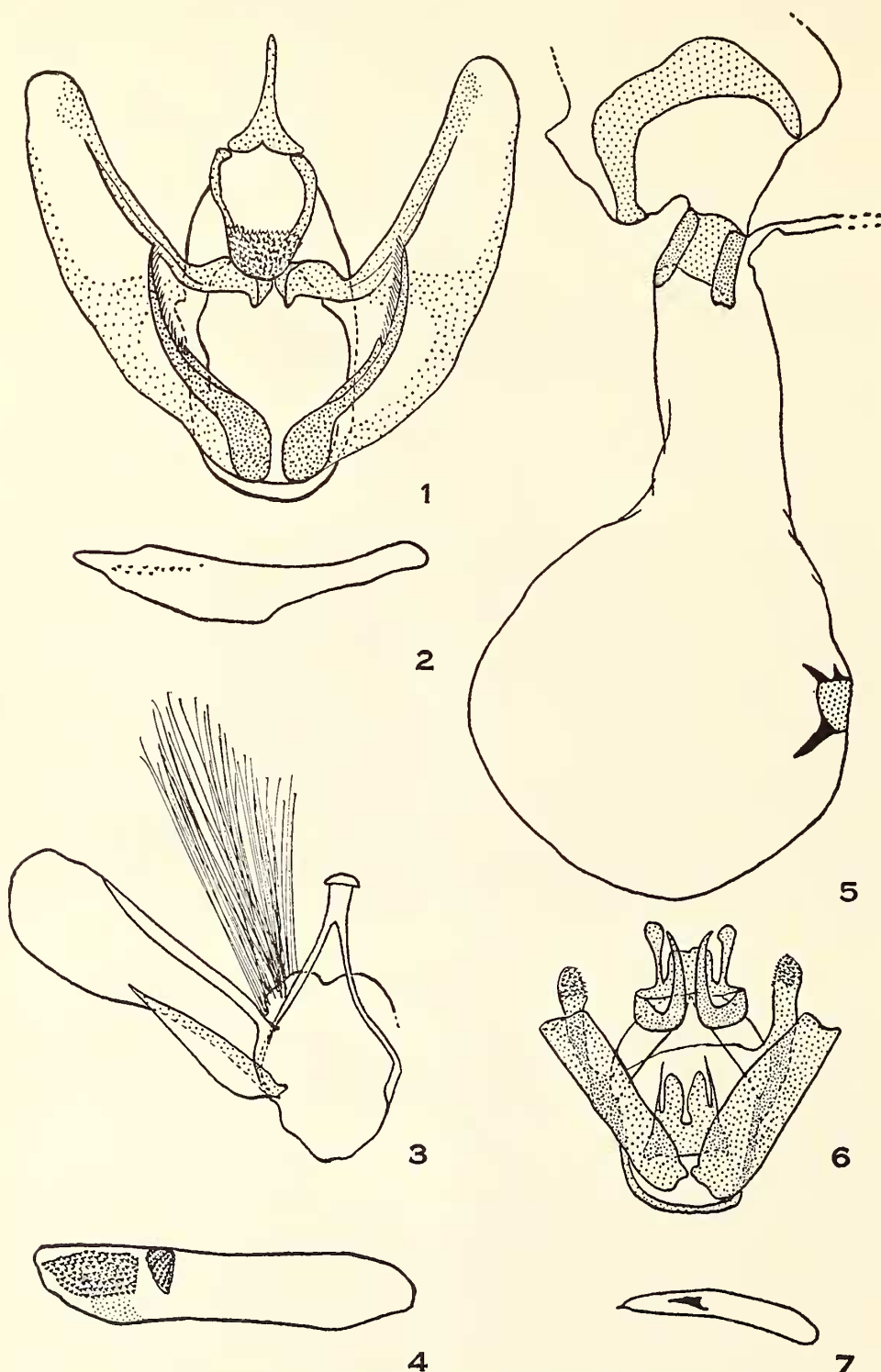
GEOMETRINAE

RACHEOSPILA BEEBEI, new species

Text-figures 3, 4; Plate I, figure 2

Description of the Holotype.—Expanse of male holotype 17 mm. Palpus Pale Pinkish Buff, equal in length to half the diameter of the eye. Antenna bipectinate, the pectinations four times as long as the diameter of the shaft, the upperside of which is White. Face Pale Pinkish Buff; between the antennae is a bar of White. Head, thorax and abdomen Pale Olivine, the abdominal segments edged posteriorly with White. The wings are Pale Olivine, the costa is

² *Zoologica*, 36 (4): 243-254 (1951).



TEXT-FIGS. 1-7. 1. *Melanoptilon collinsi*, new species. Valves. 2. *Melanoptilon collinsi*, new species. Aedeagus. 3. *Racheospila beebei*, new species. Valve. 4. *Racheospila beebei*, new species. Aedeagus. 5. *Melanoptilon collinsi*, new species. Female genitalia. 6. *Oospila zamradensis*, new species. Valves. 7. *Oospila zamradensis*, new species. Aedeagus. (All drawings standard magnification, about $\times 45$).

lightly irrorate with Drab, the sinuous postmedial fascia is White and the fringes are Chalcodony Yellow; the cell spots are Fuscous and well marked on both wings. The undersides of both wings are White and glossy; the anterior half of the forewing is irrorate with Drab; the cell spots are minute and Fuscous.

Male genitalia weakly sclerotised. Uncus broadly rounded; strong hair tufts arise from the dorsal side of its base. Valve with a flap on the basal half of the distal margin. Aedeagus with a lightly sclerotised patch near the apex. Vesica with two scobinate cornuti in the apical half.

Material.—Holotype, male No. 481604, Venezuela, Rancho Grande near Maracay, (W. Beebe).

OOSPILA ZAMARADARIA, new species

Text-figures 6, 7; Plate I, figure 1

Description of the Holotype.—Expanse of the male holotype 22 mm. Palpus equal in length to the diameter of the eye. Basal two-thirds of antenna bipectinate, the length of the pectinations shortening basad and apicad; at their greatest length the pectinations are ten times as long as the diameter of the shaft, which is Fuscous. Face and head Drab; thorax and first abdominal segment Peacock Green, remaining abdominal segments Drab. On each of the four abdominal segments from two to five there is a glossy, Fuscous-Black crest and there is a similar but minute crest on segment six. The wings are Peacock Green with a broad sinuous Fuscous band at the distal margin. On the forewing the cell spots and the costa are Fuscous; on the hindwing the cell spots are wanting.

The ground color of the underside is Pale Glaucous-Green; the pattern differs from the upperside only on the hindwing, where the Fuscous band at the distal margin is weak and narrowed. The wing pattern of this species is reminiscent of the African genus *Zamarada* (Ennominae).

Male genitalia with uncus short and truncate. Socii well developed and extending beyond the uncus. Juxta bilobed. Valve truncate, the outer margin folded inwards; the costa is produced beyond the truncate apex of the valve and broadly rounded, the inner surface toothed apically. The aedeagus is tapered apically and tipped with a single tooth. The vesica has one cornutus, a single spine equal in length to the width of the aedeagus.

Material.—Holotype, male No. 481605, Venezuela, Rancho Grande near Maracay, (W. Beebe); Paratype, male No. 481616, Venezuela, Rancho Grande near Maracay, (W. Beebe).

ENNOMINAE

MELANOPTILON COLLINSI, new species

Text-figures 1, 2, 5; Plate I, figures 4, 5

Description of the Species.—Expanse of male and female types 24-30 mm. Palpus twice as long as the horizontal diameter of the eye, which is ovate. Male antenna bipectinate almost to the apex. At their longest the pectinations, which decrease in length apicad, are four times as long as the diameter of the shaft. Female antenna simple. Palpus, head, thorax and dorsal half of the abdomen Fuscous-Black. Face, pectus and ventral half of the abdomen White. Wings Fuscous-Black with two Orange patches on the forewing and one on the hindwing. The underside of the forewing is similar to the upperside, but with the costal edge White for three-quarters of its length and there is a White spot at the distal margin between veins M_3 and Cu_1 . The basal third of the underside of the hindwing is White, the Orange patch of the upperside is marked in White and there are two White spots near the apex, one between the costal vein and Sc, the other between veins Sc and M_1 ; there is a further White patch extending to the distal margin between veins M_3 and Cu_1 . The remainder of the wing is Fuscous-Black and in the White areas the Fuscous-Black veins contrast sharply.

Male genitalia with uncus simple and tapered. Apex of gnathos spatulate and spinose. Furca one half as long as the valve, the apical half spinose on the inner surface. Valve simple and partially sclerotised, rounded at the apex. Apical half of the aedeagus twice as broad as the basal half, except at the tip, which is tapered. Vesica slightly scobinate.

Female genitalia with genital plate almost horse-shoe shaped. Posterior half of the bursa copulatrix cylindrical, the anterior half globular and the whole is membranous. The single signum, in the anterior half of the bursa copulatrix, is discoid with three stout spines on the inner surface.

Most closely related to *M. simulans* Walker (1854, List. Lep. Ins. B. M., 2:373) and *M. timidaria* Herrich-Schäffer (1856, Samml. aus-sereurop. Schmett., 49, pl. 94: 538, 539).

Material.—Holotype, male No. 481607; Allotype, female No. 481608; paratypes, 31 males, 7 females, Nos. 481609 to 481647 inclusive. Taken from May 21 to July 6 at Rancho Grande near Maracay, Venezuela. Of this series, 16 male and 4 female paratypes (Nos. 481628-481647) are in the collection of The American Museum of Natural History.

NELO GLAUCATA, new species

Plate I, figure 3

Description of the Holotype.—Expanse of female holotype 36 mm. Head, thorax and abdomen Fuscous-Black; basal half of the patagia Orange. Wings Fuscous-Black; in the center of the posterior half of the forewing is an iridescent blue-green spot, extending in diameter from the inner margin to the lower median. The underside of the forewing is Fuscous-Black, except for the costa and for a broad band at the distal margin, which are Drab. At the base of the hindwing is an Orange spot; the remainder of the wing is Drab, with the Fuscous-Black veins contrasting sharply.

Most closely related to *N. coelisigna* Walker

(List Lep. Ins. B. M., 2:384), from which it differs in the color of the underside and the differently colored and much reduced iridescent spot on the upperside of the forewing.

Material.—Holotype, female No. 481648, Venezuela, Rancho Grande near Maracay, July 21, 1946. (W. Beebe).

EXPLANATION OF THE PLATE

PLATE I

FIG. 1. *Oospila zamaradensis*, new species.

FIG. 2. *Racheospila beebei*, new species.

FIG. 3. *Nelo glaucata*, new species.

FIG. 4. *Melanoptilon collinsi*, new species. Upperside.

FIG. 5. *Melanoptilon collinsi*, new species. Underside.
(Plate figures twice natural size).



1



2



3



4



5

FOUR NEW SPECIES OF GEOMETRIDAE (MOTHS) FROM RANCHO GRANDE, NORTH-CENTRAL VENEZUELA